

REMARKS

Applicants will address each of the Examiner's rejections in the order in which they appear in the Final Rejection.

Claim Rejections - 35 USC §103

Claim 28

In the Final Rejection, the Examiner rejects Claim 28 under 35 USC §103(a) as being unpatentable over Kim et al. ("Attenuating phase-shifting masks of chromium aluminum oxide", Applied Optics, vol. 32, no. 19, July 1, 1998) in view of Fujikawa et al. (JP 01-173718) and Schmitz et al. (US 5,447,570). This rejection is respectfully traversed.

While Applicants traverse this rejection, in order to advance the prosecution of this application, Applicants are canceling Claim 28 without prejudice or disclaimer. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 29, 30 and 35

The Examiner also rejects Claims 29, 30 and 35 under 35 USC §103(a) as being unpatentable over Kim in view of Tanaka (US 5,824,197) and Ballentine et al. (US 5,248,402). This rejection is also respectfully traversed.

While Applicants traverse this rejection, in order to advance the prosecution of this application, Applicants are amending Claim 29 to more clearly claim the present invention. It is respectfully submitted that amended independent Claim 29 is not disclosed or suggested by the cited references.

More specifically, independent Claim 29 is directed to a DC magnetron sputtering apparatus having a whole-surface erosion cathode and a shield having a shape which has been specialized for the whole-surface erosion cathode so that sputtering can be carried out on the whole surface of the target.

As the Examiner admits, Kim does not disclose a whole-surface erosion cathode or a shield. Therefore, the Examiner cites Ballentine for allegedly disclosing a whole-surface erosion cathode (but not a shield) and Tanaka for allegedly disclosing a shield (but not a whole erosion cathode) and combines the three references together to allegedly arrive at the claimed invention.

However, the shield of independent Claim 29 of the present application has an inner surface continuously extending away from the target. This design is intended to improve the distance between the target with a whole-surface erosion cathode (wherein sputtering is carried on the whole surface of the target) and the claimed shaped shield, so as to prevent a relative film formation (by sputtered material from the target with a whole-surface erosion cathode) speed on the shield from being larger than that on the substrate, as recited in Claim 29.

In contrast, the shield in Tanaka has a concave, curved inner surface which is not an inner surface continuously extending away from said target, as recited in Claim 29 of the present application. Tanaka also does not disclose or suggest a target with a whole-surface erosion cathode, as in the device of Claim 29. Further, while the shield in Tanaka may improve the direction of the sputtered material, there is no improvement in the distance between the shield and the target to control the relation of the film formation speed between the shield and the substrate, as recited in Claim 29.

Moreover, even if a whole erosion cathode is used in Tanaka (which Applicants do not admit is suggested), the sputtered material would adhere to the concave, curved inner surface, which is not

an inner surface continuously extending away from said target. Hence, there would be no motivation for one skilled in the art to use the whole surface erosion cathode of Ballentine with the shield of Tanaka. Therefore, the combination of references in this rejection is improper, and independent Claim 29 would not have been obvious over Kim in view of Tanaka and Ballentine.

Further, none of the cited references disclose or suggest the apparatus of independent Claim 29, or those claims dependent thereon.

Accordingly, independent Claim 29 and those claims dependent are patentable over the cited references, and it is respectfully requested that this rejection be withdrawn.

Claims 31-33

The Examiner also rejects Claims 31-33 under 35 USC §103(a) as being unpatentable over Kim in view of Ballentine and Tanaka and further in view of Gogh et al. (US 6,620,296). This rejection is also respectfully traversed.

Each of these claims is a dependent claim. Therefore, for at least the reasons given above for independent Claim 29, these claims are also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claim 34

The Examiner also rejects Claim 34 under 35 USC §103(a) as being unpatentable over Kim in view of Ballentine and Tanaka and further in view of Katsura et al. (US 4,933,063). This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons given above for independent Claim 29, this claim is also patentable over the cited references. Accordingly, it is

respectfully requested that this rejection be withdrawn.

Claim 36

The Examiner also rejects Claim 36 under 35 USC §103(a) as being unpatentable over Kim in view of Ballentine and Tanaka and further in view of Mintz et al. (US 6,162,297). This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons given above for independent Claim 29, this claim is also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 30 and 37

The Examiner also rejects Claims 30 and 37 under 35 USC §103(a) as being unpatentable over Kim in view of Ballentine and Tanaka and further in view of Mostovoy et al. (US 6,428,663). This rejection is also respectfully traversed.

Each of these claims is a dependent claim. Therefore, for at least the reasons given above for independent Claim 29, these claims are also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claim 38

The Examiner also rejects Claim 38 under 35 USC §103(a) as being unpatentable over Kim in view of Ballentine and Tanaka and further in view of Fujikawa et al. This rejection is also respectfully traversed.

This claim is a dependent claim. Therefore, for at least the reasons given above for

independent Claim 29, this claim is also patentable over the cited references. Accordingly, it is respectfully requested that this rejection be withdrawn.

Conclusion

Applicants respectfully submit that the present application is in a condition for allowance and should be allowed.

If any fee is due for this amendment, please charge our deposit account 50/1039.

Favorable reconsideration is earnestly solicited.

Respectfully submitted,

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